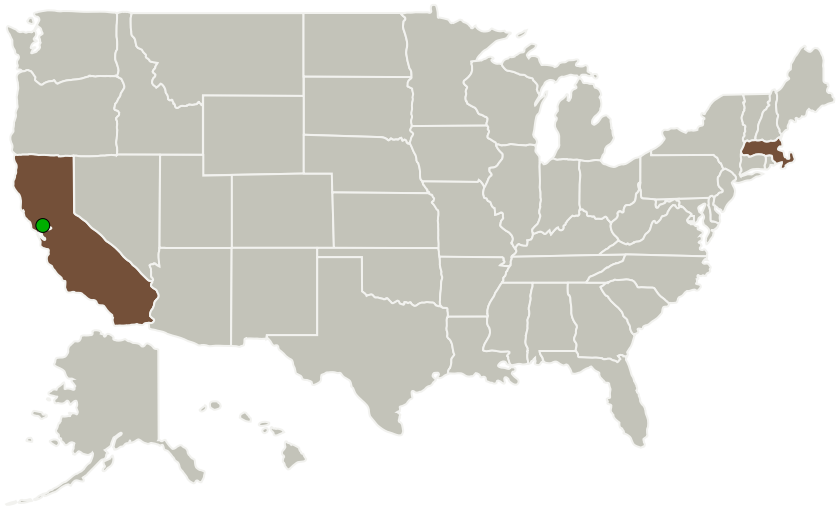
Robotic Vehicle Proxy Simulation, Phase II

Completed Technology Project (2011 - 2014)

Project Introduction

Energid Technologies proposes the development of a digital simulation to replace robotic vehicles in field studies. It will model the dynamics, terrain interaction, sensors, control, communications, and interfaces of a robotic vehicle with the goal of supporting validation and training. The simulation will be very easy to use by simple execution on a networked PC. It will connect to NASA's robot-control frameworks and be easy to configure using a drag-and-drop interface. It will be thorough in its ability to model a range of environments, from terrestrial to lunar, and through its ability to provide accurate sensor and truth data for analysis. It will include simulation of communication latency and bandwidth restrictions. Sensors will be modeled through a powerful plugin interface that supports tying stimulation of new sensor modalities to terrain and objects. The effort will include the development of robot, sensor, and environment models tailored to the simulation of field-study vehicles, and it will emphasize mimicking the network interfaces used by NASA. The proxy simulation will be able to model multiple and disparate robots simultaneously. Energid will implement and deliver a complete, executable system and an underlying C++ software toolkit.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Energid Technologies	Lead Organization	Industry	Cambridge, Massachusetts
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	Massachusetts

Project Transitions

June 2011: Project Start

June 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139291)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Energid Technologies

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

James D English

Co-Investigator:

James English

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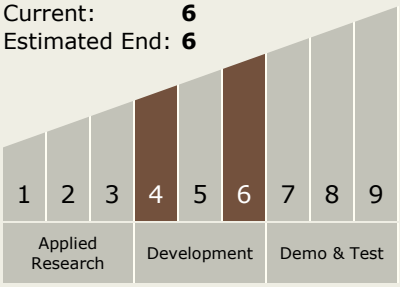
Technology Maturity (TRL)

Start: **4**
Current: **6**
Estimated End: **6**



Technology Areas

Primary:

- TX04 Robotic Systems
  - TX04.6 Robotics Integration
    - TX04.6.2 Modeling and Simulation for Robots

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System